

INCH-POUND

MIL-R-5757/1J
3 September 2004
 SUPERSEDING
 MIL-R-5757/1H
 3 January 1986

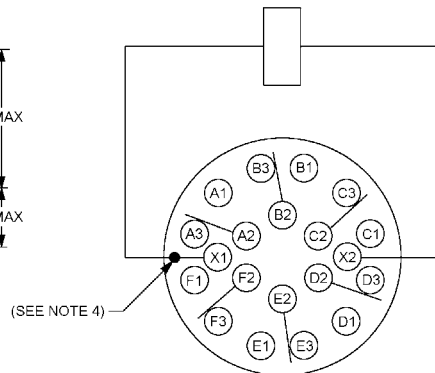
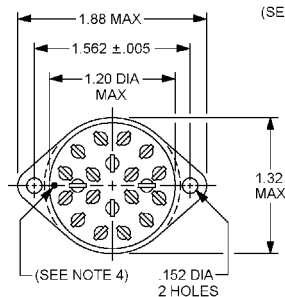
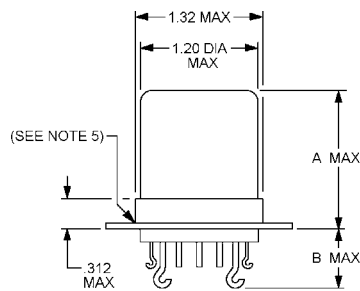
MILITARY SPECIFICATION SHEET

RELAYS, ELECTRICAL, HERMETICALLY SEALED,
 6PDT, LOW LEVEL TO 2 AMPERES

INACTIVE FOR NEW DESIGN
 AFTER 15 OCTOBER 1998

This specification sheet is approved for use by all Departments
 and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall
 consist of this specification sheet and MIL-R-5757.



SCHEMATIC DIAGRAM
 DEENERGIZED POSITION
 BOTTOM VIEW

Inches	mm
.005	0.13
.312	7.92
1.20	30.5
1.32	33.5
1.562	39.67
1.88	47.8

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is $\pm .010$ (0.25 mm).
3. Metric equivalents are given for general information only.
4. A colored line or dot shall be placed in the position shown, or optionally, the adjacent terminal in a clockwise direction around the outermost terminal circle shall have a blue bead.
5. Mounting screw head clearance shall be provided so that the relay may be mounted using a round head machine screw having .250 (6.35 mm) nominal head diameter; also the mounting surface shall be flat, with a minimum .276 (7.01 mm) diameter, and concentric with the mounting hole.

Dash numbers	A max	B max
-021, -027, -103	1.38 (35.1)	.56 (14.2)
-028	1.10 (27.9)	.84 (21.3)

FIGURE 1. Relay - solder lug configuration (M5757/1-021, -103, -027, and -028).

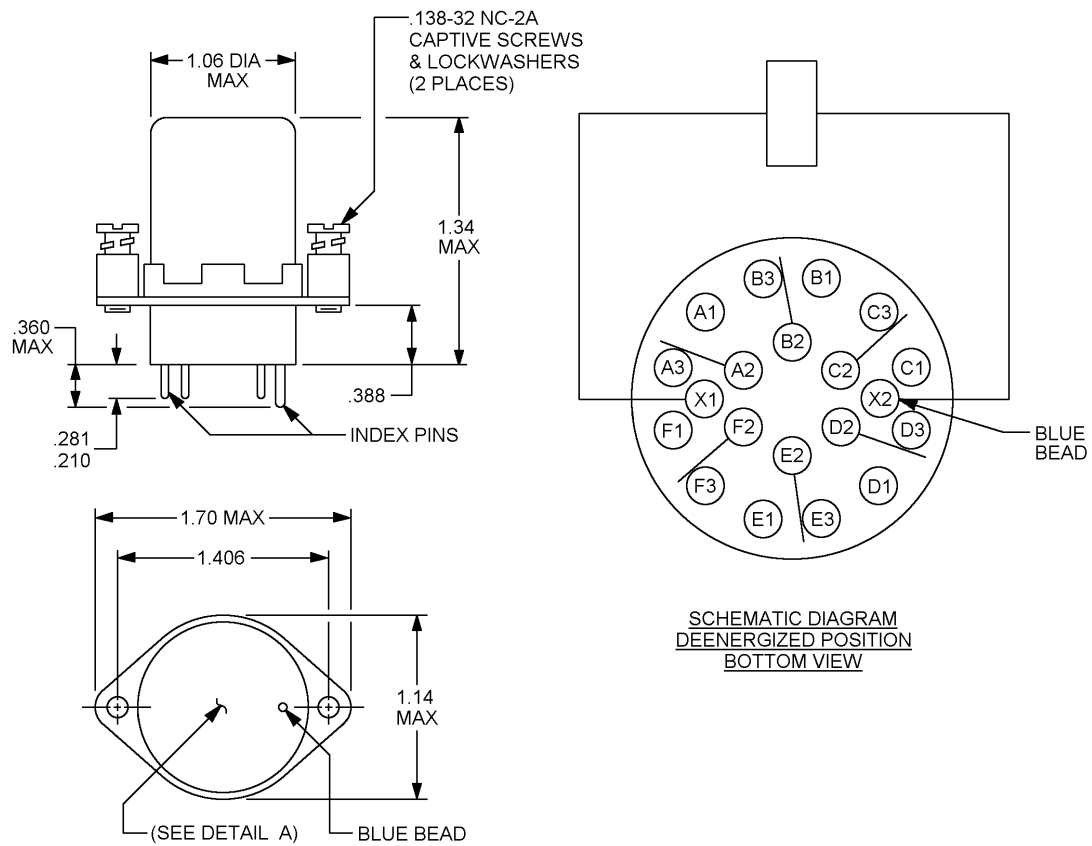
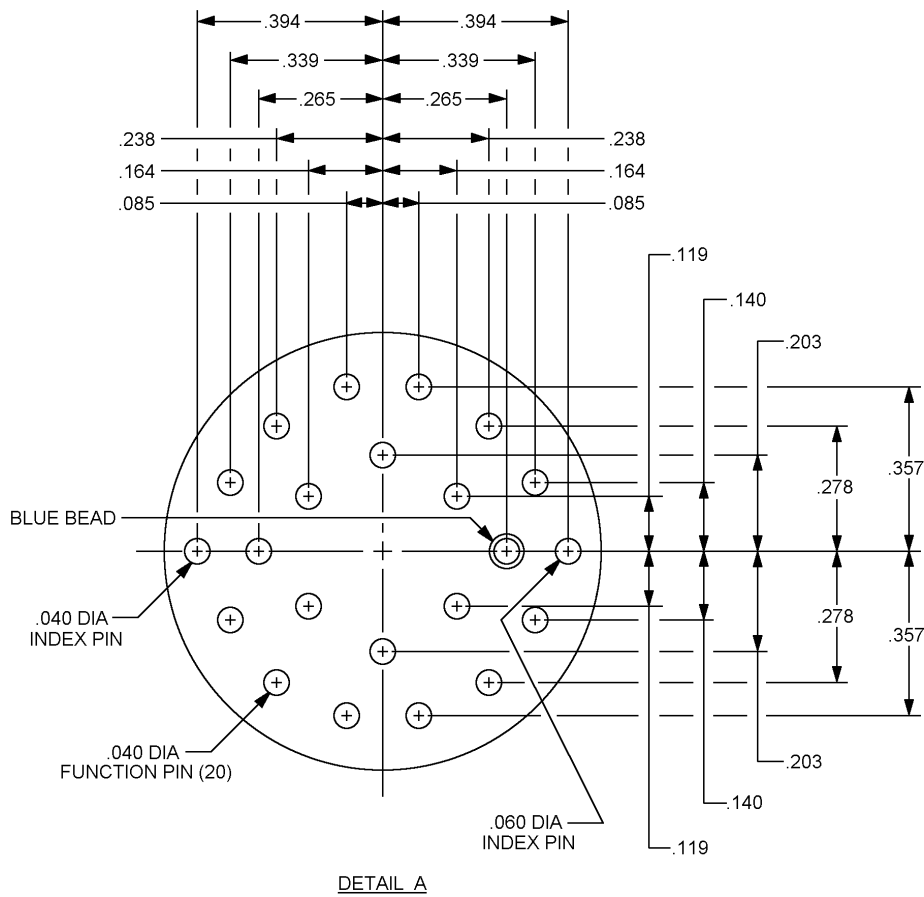


FIGURE 2. Relay - socket pin configuration (M5757/1-026).

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.040	1.02	.164	4.17	.281	7.14	1.06	26.9
.060	1.52	.203	5.16	.339	8.61	1.14	29.0
.085	2.16	.210	5.33	.357	9.07	1.34	34.0
.119	3.02	.238	6.05	.360	9.14	1.406	35.71
.138	3.51	.265	6.73	.388	9.86	1.70	43.2
.140	3.56	.278	7.06	.394	10.01		

NOTES:

1. Dimensions are in inches.
2. Unless otherwise specified, tolerance is ± 0.010 (0.25 mm).
3. Metric equivalents are given for general information only.
4. All active electrical terminals shall be gold plated 0.00005 (50 microinches) minimum. One system for gold plating that may be used is ASTM B488, type 3, class 1.25 with a nickel underplate of 50 to 150 microinches thick. Gold plating of index pins is optional. The gold plating system shall enable the product to meet the performance requirements of this specification and shall be approved by the qualifying activity.

FIGURE 2. Relay - socket pin configuration (M5757/1-026) - Continued.

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REQUIREMENTS:

Contact data:

	High level characteristics (M5757/1-103, -027, and -028)	Low level characteristics (M5757/1-021, -026, -027, and -028)
Configuration: -----	6PDT	6PDT
Arrangement:-----	6 form C	6 form C
Load ratings (relay case grounded):		
Resistive:-----	2 amperes at 28 V dc	30 microamperes at 30 mV, dc to peak ac
Intermediate current -----	Applicable -027 and -028	Not applicable

Contact resistance or voltage drop:

Rated life:

Before: -----	0.05 ohm maximum	0.05 ohm maximum
During: -----	10 percent of open circuit voltage maximum	100 ohms maximum
After:-----	0.1 ohm maximum	0.15 ohm maximum
Contact bounce:	1 ms maximum (-103, test at rated resistive load) 2 ms maximum (-027 and -028, test at rated load)	5 ms maximum (-021, -026, -027, -028)

Overload:

Resistive:	Two times rated current	Not applicable
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Coil data:

Duty rating: Continuous.

Maximum voltage: 32 V dc.

Nominal voltage: 26.5 V dc.

Pickup voltage: 18 V dc maximum over temperature range.

Dropout voltage: 1.5 V dc minimum, 14 V dc maximum over temperature range.

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Coil resistance: 180 ohms minimum, 220 ohms maximum at 25°C, except for -026 the coil resistance shall be 260 ohms maximum at +25°C.

Operate time: 15 ms maximum.

Release time: 15 ms maximum.

Electrical data:

Insulation resistance: 1,000 megohms minimum, except the resistance between coil and case at high temperature shall be 500 megohms or greater.

Dielectric withstanding voltage:

	Sea level V rms (60 Hz)	Altitude V rms (60 Hz)
Between case, frame, or enclosure, and all contacts both in the energized and deenergized positions: -----	1,000	350 All terminals to case
Between case, frame, or enclosure and coil: -----	1,000	
Between all contacts and coil: -----	1,000	
Between open contacts in the energized and deenergized positions: -----	500	
Between contact poles: -----	1,000	

Environmental data:

Temperature range: -65°C to +125°C.

Internal moisture: Applicable.

Vibration: 15 g's, 10 to 2,000 Hz and 20 g's, 10 to 2,000 Hz.

Acceleration: Applicable.

Shock: 100 g's.

Physical data:

Terminal strength: 5 ±0.5 pound pull.

Sealed by welding: Optional.

Dimensions and configuration: See figures 1 and 2.

Terminations: See figures 1 and 2.

Weight: 0.27 pound maximum.

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Life test requirements:

High level: 100,000 cycles.

Low level: 100,000 cycles.

Intermediate current (level II): 50,000 cycles.

VERIFICATION:

Group A.

- a. Group A1: Run-in (applicable to -021, -026, -027, and -028 relays only). This subgroup may be waived at the discretion of the qualifying activity if fully tested MIL-PRF-39016/6 relays are used internally.
- b. Group A2: 100 percent.
- c. Dielectric withstanding voltage:
 - (1) Tests to be conducted at sea level rating only.
 - (2) Duration of application: 5-10 seconds at a 10 percent increase in the dielectric strength voltage.

Qualification inspection: See table I or II as applicable.

TABLE I. Qualification inspection and sample size.

Part number M5757/1-	Number of sample units
021	12 units plus 1 open unit. Qualification inspection as applicable.
103	12 units plus 1 open unit. Qualification inspection as applicable (except contact bounce shall be performed at rated resistive load)
026	12 units plus 1 open unit. Qualification inspection as applicable
027 and 028	20 units plus 1 open unit. Qualification inspection as applicable

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TABLE II. Extension of qualification and sample size.

Part number M5757/1-		Test	Number of sample units
Qualified	Extension to		
021	026	Visual and mechanical	} 1 4
021	103	High level life	
		Electrical characteristics <u>1/</u>	
021	027 and 028	Visual and mechanical	1
		High level life	4
		Minimum current	4
103	021 and 026	Low level life	4
026	021	Visual and mechanical	} 1 1 4
026	103	Visual and mechanical	
		High level life	
		Electrical characteristics <u>1/</u>	
027	021 and 028	None required	---
	103	Electrical characteristics <u>1/</u>	2

1/ Contact bounce shall be performed at rated resistive load.

Qualification by similarity: If the relay case, frame, or enclosure contains integral electromagnetic relays (mounting means excepted) currently listed on the qualified products list of MIL-PRF-39016, reduced testing shall consist of subjecting four sample units to the shock and vibration requirements of this specification sheet. Post tests shall include insulation resistance, dielectric withstanding voltage and electrical characteristics, and seal. One unsealed unit shall be submitted to the qualifying activity.

Part or Identifying Number (PIN): M5757/1- (applicable dash numbers from table III).

TABLE III. Part number and applicable characteristics.

Part number M5757/1-	Vibration
Low level	
021	20 g's, 10 to 2,000 Hz
026	15 g's, 10 to 2000 Hz
High level	
103 <u>1/</u>	15 g's, 10 to 2000 Hz
Low to High level	
027 <u>2/</u>	20 g's, 10 to 2,000 Hz
028 <u>2/</u>	20 g's, 10 to 2,000 Hz

1/ Not for new design after 5 March 1969.

2/ Each relay possesses high level and low level capabilities; however, relays previously tested at high level loads shall not be used for low level applications.

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Retention of qualification (applicable only to relay assemblies which contain integral relays): 4 units, M5757/1-026, group B tests as specified in MIL-R-5757 plus shock and vibration in three planes, electrical characteristics, and gross leak (seal).

Supersession data: See tables IV and V.

TABLE IV. Supersession data by part number.

Canceled part number M5757/1-	Replacement part number M5757/1-
001	027
002	027
003	027
004	No replacement
005	No replacement
006	No replacement
007	027
008	027
009	027
010	No replacement
011	No replacement
012	No replacement
013	021 or 027
014	021 or 027
015	021 or 027
016	No replacement
017	No replacement
018	No replacement
019	021 or 027 ^{1/}
020	021 or 027 ^{1/}
022	No replacement
023	No replacement
024	No replacement
025	027
101	103 or 027 ^{1/}
102	103 or 027 ^{1/}

^{1/} For Government logistics support, M5757/1-027 supersedes -021 and -103.

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TABLE V. Supersession data by CAGE

Superseded		Superseding Part number M5757/1-
CAGE	Part number	
80063	SM-C-415280	026

Referenced documents. In addition to MIL-R-5757, this document references the following:

ASTM B488 MIL-PRF-39016 MIL-PRF-39016/6

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5945-1240)

Review activities:

Army - AR, AT, AV, MI
Navy - SH
Air Force - 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://www.dodssp.daps.mil/>.